System Dynamics Review

VOLUME 8

1992

WILEY
Publishers Since 1807

ISSN 0883-7066
SDREEG 8(1-3) 1-278 (1992)

System Dynamics Review

The Journal of the System Dynamics Society

Executive editor

George P. Richardson
Rockefeller College of Public Affairs and Policy
State University of New York at Albany
Albany, NY 12222, U.S.A.

Managing editors for main articles

Andrew Ford
Environmental Science and Regional Planning
Washington State University
Pullman, WA 99164–4430, U.S.A.

Erik Mosekilde
Technical University of Denmark, Physics Laboratory III
Lyngby 2800, Denmark

Associate editors

David F. Andersen	Public policy
Stephen Boyce	Environmental policy
Thomas D. Clark	Information systems
R. Geoffrey Coyle	Conflict and defense
Alan K. Gaynor	Social science
Janet Gould-Kreutzer	Teaching and learning
Alan K. Graham	Technical methodology
Pratap K. J. Mohapatra	Region: India
John D. W. Morecroft	Business policy and applications
Roger F. Naill	Energy
David W. Peterson	Validation
Michael J. Radzicki	Economics
Khalid Saeed	Region: Southeast Asia
Qifan Wang	Region: China

Announcements and reviews

R. Joel Rahn
Faculté des Sciences de l'Administration, Université Laval
Ste. Foy, Quebec G1K 7P4, Canada

Archives

John D. Sterman
Sloan School of Management, MIT
Cambridge, MA 02139, U.S.A.

Notes and insights

Erich O. K. Zahn
Betriebswirtschaftliches Institut, Abt. IV, Universität
Stuttgart, W–7000 Stuttgart, Germany

Research problems

George P. Richardson
Executive Editor

Publications Committee of the Society

John D. W. Morecroft
Jay W. Forrester
George P. Richardson
Eric Wolstenholme

Publisher

John Wiley & Sons, Ltd.
Baffins Lane, Chichester, West Sussex PO19 1UD, U.K.
Tel: 0243 779777, Fax: 0243 775878, Telex: 86290
(for subscriptions, memberships and advertising)

The **System Dynamics Review** (ISSN 0883–7066) is published three times a year for the System Dynamics Society by John Wiley & Sons Ltd.

Subscriptions: 1992 institutional price $125. Individuals receive a subscription to the *Review* with their membership in the System Dynamics Society. Annual dues are $70 for regular members and $35 for students and supported members with family incomes less than US$20,000. Address orders for subscriptions and memberships to the publisher at the address below.

System Dynamics Society: Address Society business other than memberships and journal inquiries to Julia S. Pugh, Executive Director of the System Dynamics Society, 49 Bedford Road, Lincoln, MA 01773, U.S.A.

Society sponsorship: Individuals and institutions wishing to help support the activities of the System Dynamics Society may become Affiliates of the Society with an annual contribution of $500 or Sponsors of the Society with an annual contribution of $1000.

Copyright © 1992 by John Wiley & Sons Ltd. Air freight and mailing in the U.S.A. by Publications Expediting Services Inc., 200 Meacham Avenue, Elmont, NY 11003, U.S.A. Copy-edited by Alice H. Cheyer, typeset by QBF Ltd, Salisbury, Wiltshire and printed by Page Bros (Norwich) Ltd, Norfolk on acid-free paper.

Postmaster: Send address changes to *Systems Dynamics Review*, c/o Publications Expediting Services Inc., 200 Meacham Avenue, Elmont, NY 11003, U.S.A.

System Dynamics Review

The Journal of the System Dynamics Society

Contents of Volume 8

VOLUME 8
NUMBER 1
WINTER
1992

ARTICLES

1 **A system dynamics model for national energy policy planning**
Roger F. Naill

21 **On the very idea of a system dynamics model of Kuhnian science**
Jason Wittenberg

35 **Comments on "On the very idea of a system dynamics model of Kuhnian science"**
John D. Sterman

Yaman Barlas

Michael J. Radzicki

55 **Qualitative simulation and system dynamics**
José Javier Dolado

NOTES AND INSIGHTS

83 **Improving education in public schools: innovative teachers to the rescue**
Gordon S. Brown

91 **Simulating *Hamlet* in the Classroom**
Pamela Lee Hopkins

101 ANNOUNCEMENTS AND REVIEWS

System Dynamics Review

The Journal of the System Dynamics Society

VOLUME 8
NUMBER 2
SUMMER
1992

ARTICLES

111 **An analysis of the cost effectiveness of U.S. energy policies to mitigate global warming**
Roger F. Naill, Sharon Belanger, Adam Klinger and Eric Petersen

129 **Food self-sufficiency in Vietnam: a search for a viable solution**
Nguyen Luong Bach and Khalid Saeed

149 **Using system dynamics to measure the value of information in a business firm**
Thomas D. Clark, Jr., and Fred K. Augustine, Jr.

NOTES AND INSIGHTS

175 **Are we losing one of the best features of system dynamics?**
José A. D. Machuca

179 **Hopf bifurcation analysis applied to predator-prey modeling**
Peter Gross and Jeppe Sturis

187 ANNOUNCEMENTS AND REVIEWS

System Dynamics Review

The Journal of the System Dynamics Society

VOLUME 8
NUMBER 3
FALL
1992

ARTICLES

193 **A system dynamics model of aircraft carrier survivability**
R. G. Coyle

213 **The spread of '88 Shanghai type-A hepatitis: a system dynamics model and analysis**
Mao-Kang Su, Keh-Hsun Chen, and Huan-Chen Wang

233 **Complex dynamics in low-dimensional continuous-time business cycle models: the Šil'nikov case**
Hans-Walter Lorenz

NOTES AND INSIGHTS

251 **Slicing a complex problem for systems dynamics modeling**
Khalid Saeed

RESEARCH PROBLEMS

263 **Benchmarking the system dynamics community**
Greg J. Scholl

267 ANNOUNCEMENTS AND REVIEWS

277 AUTHOR INDEX